

Common Alerting Protocol Tsunami Profile

CAP-TSU

Draft

Version 1.1
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Document Change History

Revision	Date	Description	Revised By
1	10/06/12	Initial Version	Carrick
2	10/19/12	Edits and Comments from PTWC	Shiro

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1 CAP-TSU 1.0

1.1 Purpose of this Document

This document provides details and rationale for version 1.0 of the tsunami profile for the Common Alerting Protocol (CAP). This document does not attempt to duplicate the existing CAP specification. Discussion will be restricted to those CAP elements that contribute to the tsunami CAP profile (CAP-TSU¹).

The primary goal of this document is to capture and describe CAP-TSU work to date. Version 1.1 of CAP-TSU needs to form the basis of an official tsunami CAP layer.

The tsunami profile complies with the Common Alerting Protocol (CAP) 1.2 specification. CAP-TSU is valid CAP.

The current version of CAP-TSU is 1.0

1.2 CAP References

CAP-TSU version 1.0, uses CAP version 1.2:

<http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html>

The latest version of this document is available on-line at:

<http://wcatwc.arh.noaa.gov/cap/documents/CAP-TSU-v1.0.pdf>

1.3 Acronyms and Abbreviations

CAP	Common Alerting Protocol
CAP-TSU	Tsunami CAP Profile
PTWC	Pacific Tsunami Warning Center
TWC	Tsunami Warning Center
UGC	Universal Geographic Code
UTC	Coordinated Universal Time
VTEC	Valid Time Event Code
WCATWC	West Coast and Alaska Tsunami Warning Center
XML	Extensible Markup Language

¹ The notion of CAP-TSU (i.e., a tsunami CAP profile) is based loosely on the Canadian CAP profile (CAP-CP). Please see <http://capan.ca/index.php/en/cap-cp/> for more details.

1.4 Tsunami CAP Profile (CAP-TSU)

The use of a tsunami CAP profile is required in order to address needs specific to the tsunami community. The tsunami CAP profile provides a tsunami hazards context with regards to the alerting community.

To participate in the development and refinement of the tsunami CAP profile, a tsunami CAP Community of Interest (COI) has been created.

Please see: <http://wcatwc.arh.noaa.gov/cap> for more details.

1.5 CAP-TSU Security

All CAP-TSU documents are digitally signed². This allows third parties to have a reasonable expectation, that the CAP-TSU document has not been tampered with.

It is strongly recommended that any third party using CAP-TSU documents verify the document before using.

The public key is available at: <http://wcatwc.arh.noaa.gov/cap/wcatwc.cer>

1.6 Links

[\(this document\)](http://wcatwc.arh.noaa.gov/cap/documents/CAP-TSU-1.0.pdf)

<http://docs.oasis-open.org/emergency/edxl-cap1.2-au/v1.0/cs01/edxl-cap1.2-au-v1.0-cs01.html>

http://capan.ca/uploads/CAP-CP/CAP-CP_Intro_Rules_Beta_0.4.pdf

<http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html>

<http://www.w3.org/TR/xmldsig-core/>

<https://www.oasis-open.org/>

<http://docs.oasis-open.org/emergency/cap/v1.2/ipaws-profile/v1.0/cap-v1.2-ipaws-profile-v1.0.html>

1.7 Sample CAP-TSU Documents

Sample CAP-TSU version 1.0 documents are available at:

<http://wcatwc.arh.noaa.gov/cap/v1.0/SEAK71CAP.xml>

<http://wcatwc.arh.noaa.gov/cap/v1.0/SEXX60CAP.xml>

<http://wcatwc.arh.noaa.gov/cap/v1.0/WEAK53CAP.xml>

<http://wcatwc.arh.noaa.gov/cap/v1.0/WEPA43CAP.xml>

<http://wcatwc.arh.noaa.gov/cap/v1.0/WEXX22CAP.xml>

<http://wcatwc.arh.noaa.gov/cap/v1.0/WEPA41CAP2.xml>

²For more information about the XMLDSIG standard, see the World Wide Web Consortium (W3C) recommendation – <http://www.w3.org/TR/xmldsig-core/>. Also, see 3.3.4.1 Digital Signatures in the CAP 1.2 specification.

2 CAP-TSU Data Dictionary

2.1 Key

Dictionary Name	Explanation
Element	CAP XML tag
CAP-TSU Usage	CAP-TSU usage. The CAP specification may indicate that the specified element usage is <i>optional</i> , while the CAP-TSU profile may indicate that usage is <i>required</i> .
CAP Value	Value taken from the CAP 1.2 specification. If no value is specified by CAP 1.2, then the phrase "User defined" will be used.
CAP Description	Short description of the element from the CAP 1.2 specification.
CAP-TSU Comments	Describes how the element is composed for the CAP-TSU profile and any applicable comments.
CAP Comments	Applicable comments from the CAP 1.2 specification
CAP-TSU Example	A CAP-TSU profile example for the specified element

NOTE: The CAP <parameter> element and CAP-TSU usage will be documented in section 3, of this document.

2.2 <event>

Element	<event>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	The text denoting the type of the subject event of the alert message (REQUIRED).
CAP-TSU Comments	The constant 'Tsunami'
CAP Comments	
CAP-TSU Example	<event>Tsunami</event>

2.3 <eventCode>

Element	<eventCode>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	A system-specific code identifying the event type of the alert message (OPTIONAL).
CAP-TSU Comments	<p>One of the constants:</p> <p>Watch, Warning, Advisory, Information, or Cancellation</p> <p>Matches current tsunami warning system category</p>
CAP Comments	<p>(1) Any system-specific code for event typing, in the form:</p> <pre><eventCode> <valueName>valueName</valueName> <value>value</value> </eventCode></pre> <p>where the content of "valueName" is a user-assigned string designating the domain of the code, and the content of "value" is a string (which may represent a number) denoting the value itself (e.g., valueName ="SAME" and value="CEM").</p> <p>(2) Values of "valueName" that are acronyms SHOULD be represented in all capital letters without periods (e.g., SAME, FIPS, ZIP).</p> <p>(3) Multiple instances MAY occur within an <info> block.</p>
CAP-TSU Example	<pre><eventCode> <valueName>TsunamiSystemCategory</valueName> <value>Warning</value> </eventCode></pre>

2.4 <identifier>

Element	<identifier>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	The identifier of the alert message (REQUIRED).
CAP-TSU	Identifier is composed as follows:

Element	<identifier>
Comments	<p>AAAA-NN-BBBBBB where:</p> <p>1) AAAA is the four character identification of the tsunami center:</p> <ul style="list-style-type: none"> - PAAQ identifies the West Coast and Alaska Tsunami Warning Center - PHEB identifies the Pacific Tsunami Warning Center <p>2) NN is the bulletin number from the tsunami warning system</p> <p>3) BBBBBB is a unique identifier automatically generated by the tsunami warning computer system. This unique identifier is used internally, to identify a particular seismic/tsunami event.</p>
CAP Comments	<p>(1) A number or string uniquely identifying this message, assigned by the sender.</p> <p>(2) MUST NOT include spaces, commas or restricted characters (< and &).</p>
CAP-TSU Example	<p>A CAP-TSU document, issued by WCATWC for bulletin number 1 with a unique identifier of 'maiqdx':</p> <pre><identifier>PAAQ-1-maiqdx</identifier></pre>

2.5 <sender>

Element	<sender>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	The identifier of the alert message (REQUIRED)
CAP-TSU Comments	<p>Email address of the tsunami center that issued the alert:</p> <p>1) wcawtc@noaa.gov</p> <p>2) ptwc@ptwc.noaa.gov</p>
CAP Comments	<p>1) Identifies the originator of this alert. Guaranteed by assigner to be unique globally; e.g., may be based on an Internet domain name.</p> <p>2) MUST NOT include spaces, commas or restricted characters (< and &).</p>
CAP-TSU Example	A CAP-TSU document, issued by WCATWC:

Element	<sender>
	<sender>wcatwc@noaa.gov</sender>

2.6 <sent>

Element	<sent>
CAP-TSU Usage	REQUIRED
CAP Value	Timestamp
CAP Description	The time and date of the origination of the alert message (REQUIRED).
CAP-TSU Comments	The bulletin issue time will be used to compose the <sent> time/date
CAP Comments	<p>(1) The date and time SHALL be represented in the DateTime Data Type (See Implementation Notes) format (e.g., "2002-05-24T16:49:00-07:00" for 24 May 2002 at 16:49 PDT),</p> <p>(2) Alphabetic timezone designators such as "Z" MUST NOT be used. The timezone for UTC MUST be represented as "-00:00".</p>
CAP-TSU Example	A CAP-TSU document, issued 18 September 2012 at 59 minutes past midnight UTC. <sent>2012-09-18T00:59:00-00:00</sent>

2.7 <source>

Element	<source>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	The text identifying the source of the alert message (OPTIONAL).
CAP-TSU Comments	Identifier of the tsunami center that issued the alert: 1) WCATWC 2) PTWC
CAP Comments	The particular source of this alert; e.g., an operator or a specific device.
CAP-TSU Example	A CAP-TSU document, issued by WCATWC:

Element	<source>
	<source>PAAQ</source>

2.8 <code>

Element	<code>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	The code denoting the special handling of the alert message (OPTIONAL).
CAP-TSU Comments	<p>profile:CAP-TSU:N.N</p> <p>Where</p> <p>1) "profile:CAP-TSU:" is a string constant 2) N.N is the major/minor version of CAP-TSU</p>
CAP Comments	<p>(1) Any user-defined flag or special code used to flag the alert message for special handling.</p> <p>(2) Multiple instances MAY occur.</p>
CAP-TSU Example	<code>profile:CAP-TSU:1.0</code>

2.9 <info>

Element	<info>
CAP-TSU Usage	REQUIRED
CAP Value	Various CAP sub-elements
CAP Description	The container for all component parts of the info sub-element of the alert message (OPTIONAL)
CAP-TSU Comments	<p>Depending upon the alert (e.g., Watch, Warning, etc), multiple <info> blocks may be present. Each <info> block applies to the same alert, but indicates that different segments may be in a different status.</p> <p>For example - The coasts of Alaska and British Columbia (BC) may be in a Watch, while the coastal segment from the BC/Washington border to the California/Mexico border may be in a Warning. In this instance, there would be two <info> blocks.</p>

Element	<info>
CAP Comments	<p>1) Multiple occurrences are permitted within a single <alert>. If targeting of multiple <info> blocks in the same language overlaps, information in later blocks may expand but may not override the corresponding values in earlier ones. Each set of <info> blocks containing the same language identifier SHALL be treated as a separate sequence.</p> <p>(2) In addition to the specified sub-elements, MAY contain one or more <resource> blocks and/or one or more <area> blocks.</p>
CAP-TSU Example	See section 1.7, this document for links to complete examples.

2.7 <senderName>

Element	<senderName>
CAP-TSU Usage	REQUIRED
CAP Value	User defined
CAP Description	The text identifying the source of the alert message (OPTIONAL).
CAP-TSU Comments	<p>Name of the tsunami center that issued the alert:</p> <p>1) NWS West Coast/Alaska Tsunami Warning Center Palmer AK 2) NWS Pacific Tsunami Warning Center Ewa Beach HI</p>
CAP Comments	The particular source of this alert; e.g., an operator or a specific device.
CAP-TSU Example	<p>A CAP-TSU document, issued by WCATWC:</p> <p><senderName>NWS West Coast/Alaska Tsunami Warning Center Palmer AK</senderName></p>

3 CAP-TSU Parameter Elements

This section identifies the various CAP-TSU <parameter> elements that are used in the CAP-TSU profile.

3.1 Key

Parameter Name	Explanation
Cap <valueName>	This is the CAP-TSU tag name that is used in the parameter group. Example: <value>EventLocationName</value>
Type	The data type for the contents of <value> Can be: Alpha [a-z,A-Z] Alpha/Numeric [a-z,A-Z,0-9, special chars] Numeric [0-9] Double [0.0-9.0]
CAP <value> description	Short description of what the contents of <value> constitute
Example	An example of CAP-TSU <value>
Always included	Some <parameters> may/may not be included (e.g., observed wave heights) 1) Yes – always included 2) No – not always included

3.2 EventLocationName

CAP <valueName>	EventLocationName
Type	Alpha/Numeric string
CAP <value> description	Short text description of where the seismic event occurred
Example	<parameter> <valueName>EventLocationName</valueName> <value>45 miles/72 Km SE of Amukta Pass, Alaska</value> </parameter>

Always included	Yes
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3.3 EventPreliminaryMagnitude

CAP valueName	EventPreliminaryMagnitude
Type	Double
CAP value description	Preliminary magnitude of the seismic event
Example	<pre><parameter> <valueName>EventPreliminaryMagnitude</valueName> <value>7.1</value> </parameter></pre>
Always included	Yes

3.4 EventPreliminaryMagnitudeType

CAP <valueName>	EventPreliminaryMagnitudeType									
Type	Alpha string									
CAP <value> description	<p>Type of preliminary magnitude of the seismic event.</p> <p>Values:</p> <table border="1" style="margin-left: 20px;"> <tr> <th>Magnitude Type</th> </tr> <tr> <td>Body (Mb)</td> </tr> <tr> <td>Duration (Md)</td> </tr> <tr> <td>Energy (Me)</td> </tr> <tr> <td>Local (ML)</td> </tr> <tr> <td>Mantle (Mw)</td> </tr> <tr> <td>Moment (Mw)</td> </tr> <tr> <td>P-wave Moment (Mwp)</td> </tr> <tr> <td>Surface wave (Ms)</td> </tr> </table>	Magnitude Type	Body (Mb)	Duration (Md)	Energy (Me)	Local (ML)	Mantle (Mw)	Moment (Mw)	P-wave Moment (Mwp)	Surface wave (Ms)
Magnitude Type										
Body (Mb)										
Duration (Md)										
Energy (Me)										
Local (ML)										
Mantle (Mw)										
Moment (Mw)										
P-wave Moment (Mwp)										
Surface wave (Ms)										
	<p>See http://earthquake.usgs.gov/earthquakes/glossary.php for more details/explanation.</p>									
Example	<pre><parameter> <valueName>EventPreliminaryMagnitudeType</valueName></pre>									

	<pre><value>Mwp</value> </parameter></pre>
Always included	Yes

3.5 EventOriginTime

CAP <valueName>	EventOriginTime
Type	Alpha/Numeric string
CAP <value> description	Time stamp when the seismic event was originated
Example	<pre><parameter> <valueName>EventOriginTime</valueName> <value>2011-09-02T10:55:54-00:00</value> </parameter></pre>
Always included	Yes

3.6 EventDepth

CAP <valueName>	EventDepth
Type	Alpha/Numeric string
CAP <value> description	Preliminary depth of the seismic event
Example	<pre><parameter> <valueName>EventDepth</valueName> <value>39 kilometers</value> </parameter></pre>
Always included	Yes

3.7 EventLatLon

CAP <valueName>	EventLatLon
Type	Alpha/Numeric string
CAP <value> description	Comma separated string with preliminary latitude and longitude of the seismic event in decimal form. Northern latitudes are positive, southern latitudes are negative. Eastern longitudes are positive, western longitudes are negative.

	Note: radius of 0.000 signifies a point
Example	<pre><parameter> <valueName>EventLatLon</valueName> <value>51.800,-171.400 0.000</value> </parameter></pre>
Always included	Yes

3.8 VTEC

CAP <valueName>	VTEC
Type	Alpha/Numeric string
CAP <value> description	<p>The Valid Time Event Code (VTEC) enables alert providers and vendors to automate and tailor the product stream delivered to their clients.</p> <p>See http://www.weather.gov/om/vtec/ for more info on VTEC</p>
Example	<pre><parameter> <valueName>VTEC</valueName> <value>/T.CON.PAAQ.TS.W.0079.110902T1545Z- 110902T1645Z</value> </parameter></pre>
Always included	<p>No</p> <p>- Not included with a Tsunami Information Statement</p>

3.9 NWSUGC

CAP <valueName>	NWSUGC
Type	Alpha/Numeric string
CAP <value> description	<p>The Universal Geographic Code (UGC) typically specifies:</p> <ol style="list-style-type: none"> 1) The affected geographic area of the product or product segment, typically by state, county (or parish or independent city), or unique NWS zone (land or marine). 2) The product expiration time . <p>See NWSI 10-1702 (www.nws.noaa.gov/directives/sym/pd01017002curr.pdf) for more details on the Universal Geographic Code</p>
Example	<parameter>

	<pre><valueName>NWSUGC</valueName> <value>AKZ185-187-021645-</value> </parameter></pre>
Always included	No - Not included with a Tsunami Information Statement

3.10 ProductDefinition

CAP <valueName>	ProductDefinition
Type	Alpha/Numeric string
CAP <value> description	Short text paragraph describing the tsunami product being issued.
Example	<pre><parameter> <valueName>productDefinition</valueName> <value>Tsunami warnings mean that a tsunami with significant widespread inundation is imminent, expected, or occurring. Warnings indicate that widespread dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after the initial wave arrival.</value> </parameter></pre>
Always included	Yes

3.11 Product ID (e.g., WEPA41, SEUS71, etc)

CAP <valueName>	Product ID
Type	Alpha/Numeric string
CAP <value> description	Alpha/Numeric string with the product ID See https://wcatwc.arh.noaa.gov/?page=product_list for a complete list of available products. This parameter provides the mapping between the product ID and description of the product.
Example	<pre><parameter> <valueName>WEAK53</valueName> <value>Public Tsunami Information Statements for AK, BC, and US West Coast</value> </parameter></pre>
Always included	Yes

3.12 predictedArrivalTime³: [location]

CAP <valueName>	predictedArrivalTime: [location]																
Type	Alpha/Numeric string																
CAP <value> description	<p>1) [location] - Alpha/Numeric string identifying the predicted arrival time of the first tsunami wave at a given location.</p> <p>2) The value has the actual predicted time as:</p> <p>YYYY-MM-DDTHH:MM:SS-hh:mm⁴</p> <p>Where:</p> <table border="1"> <tr> <td>YYYY</td><td>four-digit year</td></tr> <tr> <td>MM</td><td>two-digit month (01=January, etc.)</td></tr> <tr> <td>DD</td><td>two-digit day of month (01 through 31)</td></tr> <tr> <td>HH</td><td>two digits of hour (00 through 23) (am/pm NOT used)</td></tr> <tr> <td>MM</td><td>two digits of minute (00 through 59)</td></tr> <tr> <td>SS</td><td>two digits of second (00 through 59)</td></tr> <tr> <td>hh</td><td>Timezone hours offset from UTC</td></tr> <tr> <td>mm</td><td>Timezone minutes offset from UTC</td></tr> </table>	YYYY	four-digit year	MM	two-digit month (01=January, etc.)	DD	two-digit day of month (01 through 31)	HH	two digits of hour (00 through 23) (am/pm NOT used)	MM	two digits of minute (00 through 59)	SS	two digits of second (00 through 59)	hh	Timezone hours offset from UTC	mm	Timezone minutes offset from UTC
YYYY	four-digit year																
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HH	two digits of hour (00 through 23) (am/pm NOT used)																
MM	two digits of minute (00 through 59)																
SS	two digits of second (00 through 59)																
hh	Timezone hours offset from UTC																
mm	Timezone minutes offset from UTC																
	<p>Notes:</p> <p>1) The location serves as a key to link predicted arrival time to the predicted wave height.</p> <p>2) Predicted arrival times will NOT be included, if observed values are available.</p>																
Example	<pre><parameter> <valueName>predictedArrivalTime: "Atka, Alaska"</valueName> <value>2011-09-02T03:29:00-08:00</value> </parameter></pre>																
Always included	<p>No</p> <p>predictedArrivalTime will not be included if:</p> <ul style="list-style-type: none"> - Predicted arrival time for specified location is not available - Observed arrival time for specified location is available and included 																

³ predictedArrivalTime, predictedWaveHeight, observedArrivalTime, and observedWaveHeight are placed within the applicable <info> block.

⁴ See <http://www.w3.org/TR/NOTE-datetime>

3.13 predictedWaveHeight: [location]

CAP <valueName>	predictedWaveHeight: [location]
Type	Alpha/Numeric string
CAP <value> description	<p>1) [location] - Alpha/Numeric string identifying the location of the predicted wave height of the maximum tsunami wave at a given location relative to normal sea level.</p> <p>2) <value> has the actual predicted wave height in both meters and feet and takes the form:</p> <p>N.Nm N.Nft</p> <p>where N.N is the height and m indicates height is in meters, ft indicates height is in feet.</p> <p>1) The location serves as a key to link predicted arrival time to the predicted wave height.</p> <p>2) Predicted wave height will NOT be included, if observed values are available.</p>
Example	<pre><parameter> <valueName>predictedWaveHeight: "Attu, Alaska"</valueName> <value>0.750m 2.461ft</value> </parameter></pre>
Always included	<p>No</p> <p>predictedWaveHeight will not be included if:</p> <ul style="list-style-type: none"> - Predicted wave height for specified location is not available - Observed wave height for specified location is available and included

3.14 observedArrivalTime: [location]

CAP <valueName>	observedArrivalTime: [location]
Type	Alpha/Numeric string
CAP <value> description	<p>1) [location] - Alpha/Numeric string identifying the observed arrival time of the first tsunami wave at a given location.</p> <p>2) The value has the actual observed time as:</p> <p>YYYY-MM-DDTHH:MM:SS-hhmm⁵</p> <p>Where:</p>

⁵ See <http://www.w3.org/TR/NOTE-datetime>

	YYYY	four-digit year
	MM	two-digit month (01=January, etc.)
	DD	two-digit day of month (01 through 31)
	HH	two digits of hour (00 through 23) (am/pm NOT used)
	MM	two digits of minute (00 through 59)
	SS	two digits of second (00 through 59)
	hh	Timezone hours offset from UTC
	mm	Timezone minutes offset from UTC

Notes:

- 1) The location serves as a key to link observed arrival time to the observed wave height.
- 2) Predicted arrival time will NOT be included, if observed values are available.

Example	<pre><parameter> <valueName>observedArrivalTime: "Atka, Alaska"</valueName> <value>2011-09-02T04:52:00-08:00</value> </parameter></pre>
Always included	<p>No</p> <p>- Only when observed arrival time for specified location is available</p>

3.15 observedWaveHeight: [location]

CAP <valueName>	observedWaveHeight: [location]
Type	Alpha/Numeric string
CAP <value> description	<p>1) [location] - Alpha/Numeric string identifying the observed wave height of the maximum tsunami wave at a given location relative to normal sea level.</p> <p>2) <value> has the actual observed wave height in both meters and feet and takes the form:</p> <p>N.Nm N.Nft</p> <p>where N.N is the height and m indicates height is in meters, ft indicates height is in feet.</p> <p>1) The location serves as a key to link observed arrival time to the observed wave height.</p> <p>2) Predicted wave height will NOT be included, if observed values are available.</p>

Example	<pre><parameter> <valueName>predictedWaveHeight: "Attu, Alaska"</valueName> <value>0.750m 2.461ft</value> </parameter></pre>
Always included	<p>No</p> <ul style="list-style-type: none"> - Only when observed wave heights are available for the specified location

3.16 CMAMtext

CAP <valueName>	CMAMtext
Type	Alpha/Numeric string
CAP <value> description	<p>Short text bulletin intended for Commercial Mobile Alert System (CMAS) dissemination. This is part of the iPAWS profile.</p> <p>Text length is limited to 90 characters.</p>
Example	<pre><parameter> <valueName>CMAMtext</valueName> <value>Tsunami danger on the coast. Go to high ground or move inland. Check local media. -NWS</value> </parameter></pre>
Always included	<p>No</p> <ul style="list-style-type: none"> - Only included for a tsunami warning